REMARKS/ARGUMENTS

This paper is submitted in response to the Office Action mailed April 14, 2005. At that time, claims 1-14 and 16-34 were pending in the application. In the Office Action, the Examiner rejected claims 1-14 and 16-34 under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. Further, the Examiner also rejected claims 1-14 and 16-34 under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. Claims 1-14 and 16-23 were further rejected under 35 U.S.C. § 112, second paragraph as being indefinite.

With respect to the prior art of record, the Examiner rejected claims 1-14, 16-19, and 21-34 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,560,831 issued to Bladen *et al.* (hereinafter "Bladen") in view of U.S. Patent Publication No. 2002/0003112 A1 filed by Golden (hereinafter "Golden"). With respect to claim 20, this claim was also rejected under 35 U.S.C. § 103(a) as being unpatenable over Bladen in view of Golden and in further view of U.S. Patent No. 4,144,355 issued to Rawlings *et al.* (hereinafter "Rawlings").

As a result of this paper, claims 1, 10, 11, 12, 21, 23, 24, 26, and 32 have been amended and claims 36-39 have been added. Likewise, claims 9, 15, and 35 have been cancelled. In light of these changes, and the following remarks, reconsideration and allowance of the present application is respectfully requested.

I. Telephonic Interview With The Examiner

Prior to addressing the substantive issues in the Office Action, the Applicants would like to thank the Examiner for conducting a telephonic interview with Applicants' attorneys Evan R. Witt and Kyle W. Grimshaw. During the interview, many of the present claim amendments were discussed as well as some of the distinctions that exist between the present embodiments and the cited references. As part of the interview, the Examiner indicated that the present claim amendments overcame the rejections based upon 35 U.S.C. § 112. Further, the Examiner invited

the Applicants to formally submit the present claim amendments and indicated that he wanted additional time to consider whether Applicants' amendments rendered these claims allowable over the cited art. Accordingly, in light of this interview, the present paper is being submitted.

II. Rejections Under 35 U.S.C. § 112

The Examiner rejected various claims 35 U.S.C. § 112. However, as noted by the Examiner during the telephonic interview, the present claim amendments address these issues. Accordingly, withdrawal of all of the rejections based upon 35 U.S.C. § 112 are respectfully requested.

III. Rejection Of Claims 1-14, 16-19, and 21-34 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-14, 16-19, and 21-34 under 35 U.S.C. § 103(a) as being unpatentable over Bladen in view of Golden. This rejection is respectfully traversed.

The MPEP makes it clear that the Examiner has the burden of establishing a *prima facie* case of obviousness. *See* MPEP § 2142. If the Examiner fails to establish a *prima facie* case, Applicants are under no duty to submit evidence of nonobviousness. *See id.* The M.P.E.P. states that

> [t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Id. Applicants respectfully submit that the Examiner has not met his burden of establishing *prima facie* obviousness.

A. There Is No Teaching To Combine Bladen And Golden

One of the key elements to establish *prima facie* obviousness is that there be a teaching or motivation to combine/modify the references to arrive at the claimed invention. *See* MPEP § 2142. No such teaching to combine exists.

Golden teaches a process for removing heavy metal contaminants from wastewater. As noted by the Examiner, this process for removing heavy metal involves "gravity settling followed by filtration (para 0024), with filtration conducted in a tank fitted with microfiltration membranes having flow 200-1500 GFD (para 0030)." Office Action, p. 5. Accordingly, Golden teaches the mandatory use of a polymeric metal removing agent, which is a polymeric dithiocarbamate, to create large filterable particles.

Bladen, on the other hand, teaches a completely different system that has a completely different separation mechanism. Bladen uses flotation coagulation/clarification and ozonization to clean fruit and vegetable "wastewater." Bladen's wastewater is treated with an anionic polyacrylamide, in combination with a metal salt. Anionic polyacrylamide is the generic name for a group of very high molecular weight macromolecules produced by the free-radical polymerization of acrylamide and an anionically charged co-monomer, mainly the sodium salt of acrylic acid, sodium acrylate. The combination of very high molecular weight and ionic charge results in extremely viscous aqueous solutions, one of the main properties of these polymers. The molecular weight is greater than 1,000,000 Daltons and usually greater than 5,000,000 Daltons. It is well known in the art that as the molecular weight of the polymers that are used in the separation process increases, the resulting particles become larger and more viscous. Accordingly, the fact that Bladen uses such high molecular weight polymers means, of necessity, that the particles formed in Bladen's system will be large and viscous and form "sludge."

Moreover, the formation of large, viscous particles in Bladen is also required based upon the fact that Bladen uses a "floatation" separation system. Specifically, Bladen teaches that after the reagents have been added to the wastewater, the wastewater enters a coagulation vessel 69

where "the polymer and coagulated contaminants float to the top of the first compartment to form a sludge." Column 6, lines 58-62 (underlining added). Generally, such floatation of the particles is accomplished by the fact that the particles are large and as such, will trap air/oxygen with the large particles. It is this trapping of air/oxygen molecules within the particles that causes the particles to float and rise the top of the coagulation vessel. Once the particles have reached the top of the coagulation vessel, the particles will form a floatable sludge that may be "skimmed" off the top as a means of separating this sludge from the wastewater. Thus, Bladen separates contaminants from wastewater by floatation, not by microfiltration.

Applicants submit that these fundamental differences between Bladen's system and Golden's system are significant and would immediately be recognized by one skilled in the art. The chemistries and purposes of these systems are distinct. In fact, Applicant believes that there is no objective reason that indicates why a skilled artisan, without knowledge of Applicants' specification, would have been lead to modify Bladen's floatation separation method (that is applicable to cleaning fruit and vegetable "wastewater") would have been combined with Golden's microfiltration system (that is applicable to the removal of heavy metals from water). Simply put, there is no impetus or reason why one or skill in the art would modify Bladen's floatation separation system with Golden's system to obtain Applicants' claimed invention. As such, these two references cannot be properly combined under 35 U.S.C. § 103(a).

B. A Combination Of Bladen And Golden Would Render Bladen Inoperable And Incapable Of Performing Its Desired Function

The MPEP explains that if the proposed modification or combination of references would cause one of the references to become inoperable or unsatisfactory for its intended purpose, then this modification/combination is improper and may not be used to reject the applicants' claims under 35 U.S.C. § 103(a). *See* MPEP § 2143.01. In support of this principle, the MPEP cites the case of *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), a case in which the PTO rejected a

patent for a "blood filter assembly" based upon a prior art reference that taught a liquid strainer for removing dirt and water from gasoline. *See id* at 1125. Specifically, the PTO asserted that "it would have been obvious to turn the reference device upside down." On appeal, the Federal Circuit reversed on grounds that if the prior art was modified in the manner asserted by the PTO—*i.e.*, if the prior art device were turned upside down—the prior art strainer would immediately become clogged and would no longer function as a strainer. *See id.* Accordingly, the Federal Circuit reasoned that because the proposed modification would make the strainer inoperable and unsatisfactory for its intended purpose, this rejection was improper. *See id.*

Applicants submit that in the present case, the proposed combination of Bladen and Golden is improper in that this combination would render Bladen inoperable and unsatisfactory for its intended purpose. Specifically, as noted above, Bladen system uses large, high molecular weight polymers that, when mixed with the "wastewater," produces a viscous "sludge" of non-uniform particles. Bladen, Column 6, lines 58-62. These viscous, non-uniform particles are required by Bladen's system so that these particles may capture air molecules and float to the surface in the separation chamber. It is this floatation of the particles that allows Bladen's system to perform separation.

The fact that Bladen's sludge will be full of large, viscous, non-uniform particles means that these particles cannot be filtered via microfiltration. As explained by Applicants' specification, in order to get proper separation via microfiltration, the plurality of particles must fit into the appropriate size range so that the particles will "stack up like marbles" on the filter membrane "where the spaces around the marbles allow significant liquid flow therethrough." Specification, paragraph [0058]. Thus, if one attempted to put Bladen's viscous, non-uniform sludge into a microfiltration membrane, this sludge would "blind" or clog any microfilter immediately upon contact. *In their research, Applicants attempted to microfilter particles that were produced via a floatation separation system (similar to the one taught by Bladen) and they found that such clogging of the filter occurred very quickly.* Like the situation in *Gordon*, such

clogging of the microfilter means that this combination of Bladen and Golden would be inoperable and would not be capable of separating the particles from solution. *See e.g., Gordon*, 221 USPQ at 1127 (holding that a proposed modification of strainer which causes the strainer to become clogged and inoperable is not a proper modification of the reference under § 103(a)). Accordingly, this combination of references is improper. Bladen's system is improper and cannot be used as a basis for rejecting the present claims under 35 U.S.C. § 103(a). Withdrawal of this rejection is respectfully requested.

IV. Rejection Of Claim 20 Under 35 U.S.C. § 103(a)

As noted above, the Examiner rejected claim 20 under 35 U.S.C. § 103(a) as being unpatenable over Bladen in view of Golden and in further view of Rawlings. This rejection is respectfully traversed.

It is well settled that if an independent claim is patentably distinct from the cited prior art, then all claims that depend from that patentable independent claim are likewise patentable. *See* MPEP § 2143.03 ("[i]f an independent claim is nonobvious under 35 U.S.C. 103 then any claim depending therefrom is nonobvious"). In the present case, claim 20 is a dependent claim that indirectly depends from independent claim 1. As described above, independent claim 1 is patentable distinct from the cited prior art. Accordingly, Applicants submit that dependent claim 20 is likewise patentable over the cited art of record. Withdrawal of this rejection is respectfully requested.

V. New Claims 36-39

Finally, it should be noted that, as a result of this paper, new claims 36-39 have been added. With respect to claims 36 and 37, these claims depend from claims 1 and 32, respectively, and add the limitation which requires that the "filtered solid particles contain less than 3% bound water." Support for this claim limitation can be found in paragraph [0059] of the

specification. *See e.g.*, Specification [0059] ("More specifically, the solids collected contain less than 3% 'bound' water...").

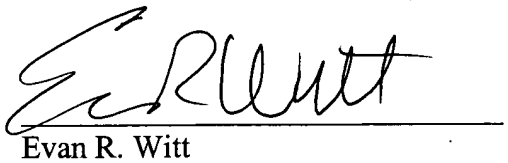
With respect to claims 38 and 39, these claims likewise depend from claims 1 and 32, respectively, and contain the limitation that the "microfiltration membrane is a low pressure membrane that operates at pressures less than 24 psi." Support for this limitation can be found, at least, in U.S. Patent Application No. 10/115,821, which patent application was incorporated by reference into the present specification. *See e.g.*, Specification [0022] (incorporating by reference U.S. Patent Application No. 10/115,821); MPEP § 2163.07(b) ("The information incorporated [by reference] is as much a part of the application as filed as if the text was repeated in the application, and should be treated as part of the text of the application as filed. Replacing the identified material incorporated by reference with the actual text is not new matter.").

Given that claims 36-39 are dependent claims that depend from patentable independent claim 1 or patentable independent claim 32, these dependent claims are likewise patentable over the cited references. *See* MPEP § 2143.03 ("[i]f an independent claim is nonobvious under 35 U.S.C. 103 then any claim depending therefrom is nonobvious"). Accordingly, favorable consideration and allowance of these new claims is respectfully requested.

VI. Conclusion

Applicants respectfully assert that all pending claims are patentably distinct from the cited references, and request that a timely Notice of Allowance be issued in this case. If there are any remaining issues preventing allowance of the pending claims that may be clarified by telephone, the Examiner is requested to call the undersigned.

Respectfully submitted,



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